H i g h l i g h t s

- **Influenza and
pneumonia ranked
sixth among the
leading causes of
death in California
in 2004.**

- **Nearly 90 percent of
influenza and
pneumonia deaths
in 2004 occurred
among California
residents aged
65 and older.**

- **California's
age-adjusted death
rate for influenza
and pneumonia
decreased by
25.2 percent from
2000 to 2004.**

- **Yolo County (42.0)
had the highest
reliable 2002-2004
average influenza
and pneumonia
age-adjusted death
rate, while San Luis
Obispo County had
the lowest (15.0).**

Influenza and Pneumonia Deaths
California, 2004

By Sally Jew-Lochman

Introduction

In 2004 influenza and pneumonia ranked sixth among the leading causes of death in California and eighth in the United States (U.S.).[1,2] The two diseases are traditionally reported together, as pneumonia is frequently a complication of influenza. Influenza is a contagious disease caused by a virus.   The number of influenza deaths can fluctuate considerably from one year to the next as influenza can be caused by more virulent virus strains in some years than others as the viruses constantly mutate. Pneumonia is a serious infection of the lungs that develops when the immune system is weakened. It is mainly caused by bacteria, viruses, and mycoplasmas.[3] Typically there are more deaths from pneumonia than influenza.

Persons most at risk of infections of influenza and pneumonia and their complications are those with weakened defenses against the disease. These include the elderly, the very young, and those with underlying health problems such as chronic respiratory or circulatory problems, diabetes, and those with compromised immune systems from medications or Acquired Immune Deficiency Syndrome (AIDS).[4] Preliminary 2003 U.S. data showed that nearly 90 percent of influenza and pneumonia deaths occurred in persons over the age of 65.[5]

Vaccinations are effective in preventing influenza as well as bacterial pneumonia and are recommended for certain priority groups. The U.S. Department of Health and Human Services developed a 10-year plan to improve the health of the nation. Known as the Healthy People 2010 (HP 2010),[6] the plan includes objectives related to increasing the number of people vaccinated against influenza and pneumonia. These objectives require specific data collection not covered in this report.

---

[1]State of California, Department of Health Services, Death Records 2004.
[2]National Center for Health Statistics. Deaths: Preliminary Data for 2004.   URL:
http://www.cdc.gov/nchs/data/hestat/preliminarydeaths04_tables.pdf#1 Accessed April 19, 2006.
[3]American Lung Association. Lung Disease Data at a Glance: Influenza and Pneumonia. URL:
http://www.lungusa.org/ Accessed January 30, 2006.
[4]American Lung Association. Pneumonia Fact Sheet, June 2005. URL: http://www.lungusa.org/
[5]National Center for Health Statistics. Deaths: Preliminary Data for 2003. National Vital Statistics
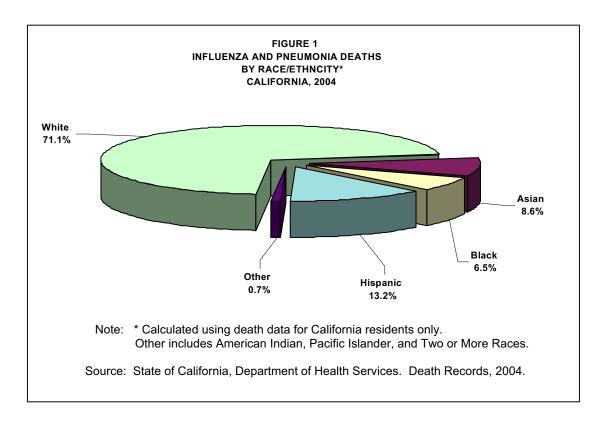Reports; Vol 53, No 15. Hyattsville, Maryland. February 2005.
[6]U.S. Department of Health and Human Services. Healthy People 2010 Objectives (Second Edition, in
Two Volumes). Washington, D.C., January 2001.

This report presents data on California resident deaths due to influenza and pneumonia for 2004. The analyses include comparisons of crude and age-adjusted death rates by sex, age, race/ethnicity, and county. The data were extracted from vital statistics records with deaths attributed to these diseases as defined by the International Classification of Diseases, Tenth Revision (ICD-10) codes J10 to J18 in accordance with the National Center for Health Statistics (NCHS).[7]

Influenza and Pneumonia Deaths

Table 1 (pages 10 to 11) shows the number of influenza and pneumonia deaths for 2004 among California residents by race/ethnicity, age, and sex. There were a total of 7,331 deaths of which females made up 3,974 or 54.2 percent and males made up 3,357 or 45.8 percent. Nearly 90 percent of all 2004 influenza and pneumonia deaths occurred among Californians aged 65 and older. The proportion of deaths increased with age as follows: 10.8 percent were aged 65 to 74; 30.9 percent were aged 75 to 84; and 48.1 percent were aged 85 and older.

Figure 1 shows that Whites had the highest percentage of deaths with 71.1 percent followed by Hispanics with 13.2 percent, Asians with 8.6 percent, Blacks with 6.5 percent, and Other with 0.7 percent. Other includes American Indians (0.2 percent), Pacific Islanders (0.2 percent) and Two or More Races (0.3 percent). Percentages may not add to 100 percent due to rounding.

FIGURE 1
INFLUENZA AND PNEUMONIA DEATHS
BY RACE/ETHNCITY*
CALIFORNIA, 2004

White 71.1%
Asian 8.6%
Black 6.5%
Hispanic 13.2%
Other 0.7%

Note: * Calculated using death data for California residents only.
Other includes American Indian, Pacific Islander, and Two or More Races.

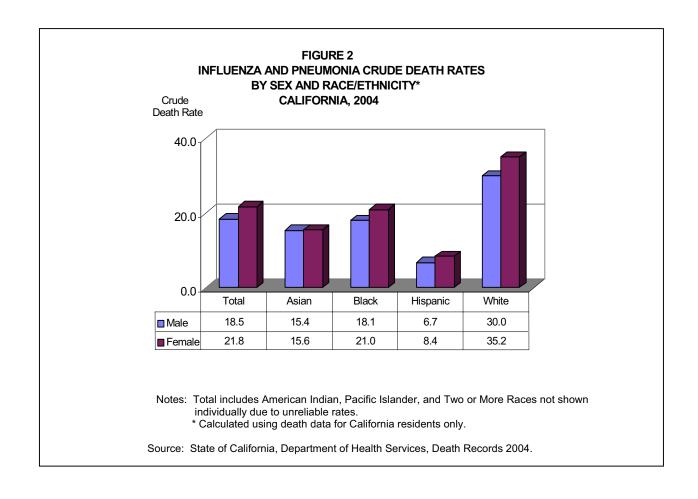Source: State of California, Department of Health Services. Death Records, 2004.

---

[7]National Center for Health Statistics. Vital Statistics, Instructions for Classifying the Underlying Cause of Death, 2005. NCHS Instruction Manual, Part 2a. Public Health Service, Hyattsville, Maryland. December 2005.

Influenza and Pneumonia Crude Death Rates

California's influenza and pneumonia crude death rate in 2004 was 20.2 per 100,000 population (**Table 1,** pages 10 to 11) significantly lower than the 2003 rate of 22.8.[8] Whites had the highest rate (32.6) followed by Blacks (19.6), Asians (15.5), Hispanics (7.6) and Two or More Races (3.4). The differences in reliable crude rates among all race/ethnic groups were significant.

Figure 2 shows the 2004 crude death rates by sex and race/ethnicity. The rate among all females was significantly higher than among all males. While the crude death rates were higher among females than males in each race/ethnic group, the differences were significant only in Hispanics and Whites.

FIGURE 2
INFLUENZA AND PNEUMONIA CRUDE DEATH RATES
BY SEX AND RACE/ETHNICITY*
CALIFORNIA, 2004

Crude Death Rate

	Total	Asian	Black	Hispanic	White
Male	18.5	15.4	18.1	6.7	30.0
Female	21.8	15.6	21.0	8.4	35.2

Notes: Total includes American Indian, Pacific Islander, and Two or More Races not shown individually due to unreliable rates.
* Calculated using death data for California residents only.

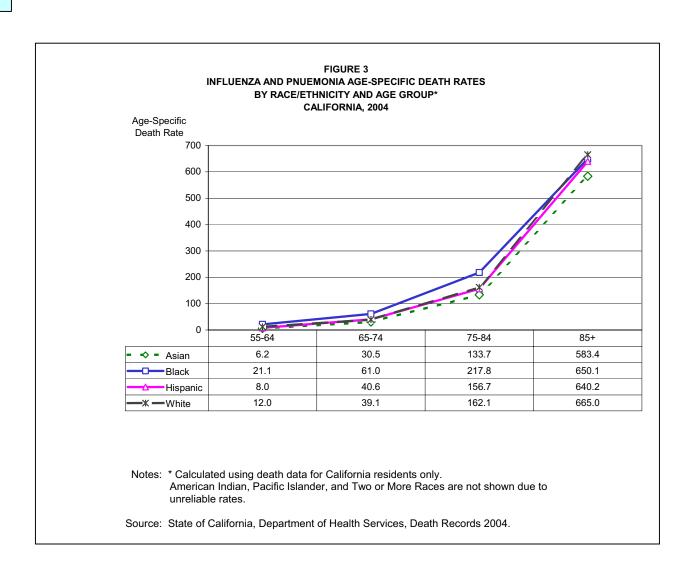Source: State of California, Department of Health Services, Death Records 2004.

---

[8]Shippen, S. Influenza and Pneumonia Deaths, California 2000-2003. Center for Health Statistics, California Department of Health Services, September 2005.

Influenza and Pneumonia Age-Specific Death Rates

Table 1 (pages 10 to 11) displays 2004 age-specific death rates by sex and race/ethnicity. In general, deaths due to influenza and pneumonia occur predominately among the very young and the elderly and increase with age for Californians 35 and older. During 2004 males had higher age-specific death rates than females among the 35 and older age groups with reliable rates.

Figure 3 shows the age-specific death rates for 2004 by race/ethnicity for residents 55 and older. Among those 85 and older, Whites had the highest rate (665.0) followed by Blacks (650.1), Hispanics (640.2) and Asians (583.4). In the 55 to 64, 65 to 74, and 75 to 84 age groups, Blacks had the highest rates (21.1, 61.0, 217.8) and Asians had the lowest rates (6.2, 30.5, 133.7).

FIGURE 3
INFLUENZA AND PNUEMONIA AGE-SPECIFIC DEATH RATES
BY RACE/ETHNICITY AND AGE GROUP*
CALIFORNIA, 2004

	55-64	65-74	75-84	85+
Asian	6.2	30.5	133.7	583.4
Black	21.1	61.0	217.8	650.1
Hispanic	8.0	40.6	156.7	640.2
White	12.0	39.1	162.1	665.0

Notes: * Calculated using death data for California residents only.
American Indian, Pacific Islander, and Two or More Races are not shown due to unreliable rates.

Source: State of California, Department of Health Services, Death Records 2004.

Influenza and Pneumonia Age-Adjusted Death Rates

Table 1 (pages 10 to 11) displays 2004 influenza and pneumonia age-adjusted death rates by sex and race/ethnicity. California's 2004 age-adjusted death rate was 21.7 per 100,000 population. Blacks had the highest age-adjusted death rate (28.0) followed by Whites (22.3), Hispanics (21.1), Asians (18.3), and Two or More races (6.9). Reliable death rates were significantly different between all race/ethnic groups except between Whites and Hispanics.

Figure 4 shows the 2004 age-adjusted death rates by sex and race/ethnicity. Unlike crude death rates, influenza and pneumonia age-adjusted death rates were higher among males than females in all race/ethnic groups. The rate for Black males was significantly higher (32.3) than all other sex-specific race/ethnic groups. White males had the second highest rate (26.2) followed by Black females (24.9), Hispanic males (23.4), Asian males (21.1), White females (19.8), and Hispanic females (19.5). Asian females had the lowest age-adjusted death rate (16.2).
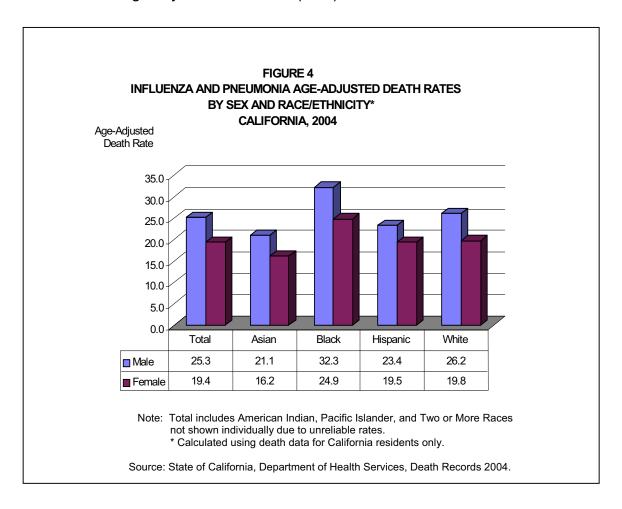
FIGURE 4
INFLUENZA AND PNEUMONIA AGE-ADJUSTED DEATH RATES
BY SEX AND RACE/ETHNICITY*
CALIFORNIA, 2004

Age-Adjusted Death Rate

	Total	Asian	Black	Hispanic	White
Male	25.3	21.1	32.3	23.4	26.2
Female	19.4	16.2	24.9	19.5	19.8

Note: Total includes American Indian, Pacific Islander, and Two or More Races not shown individually due to unreliable rates.
* Calculated using death data for California residents only.

Source: State of California, Department of Health Services, Death Records 2004.

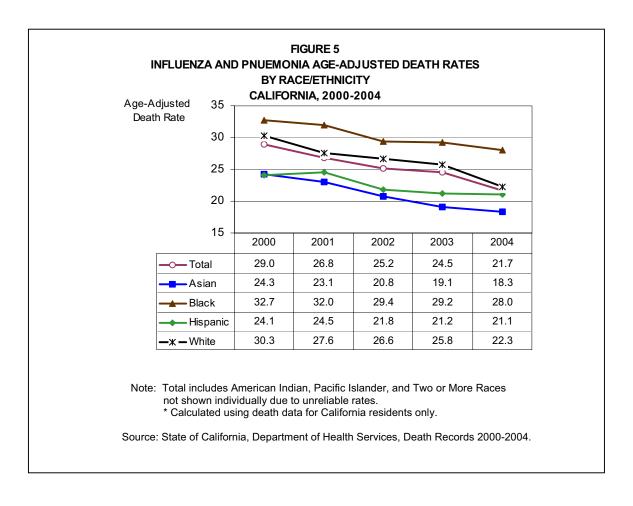**Figure 5** shows the overall age-adjusted influenza and pneumonia death rates decreased by 25.2 percent, from 29.0 deaths per 100,000 population in 2000 to 21.7 in 2004.[8] The largest percentage decrease over this five-year period was seen in Whites (26.4), followed by Asians (24.7), Blacks (14.4), and Hispanics (12.4). The decreases in death rates were significant within each race/ethnic group with reliable rates.

FIGURE 5
INFLUENZA AND PNUEMONIA AGE-ADJUSTED DEATH RATES
BY RACE/ETHNICITY
CALIFORNIA, 2000-2004

Age-Adjusted Death Rate

	2000	2001	2002	2003	2004
Total	29.0	26.8	25.2	24.5	21.7
Asian	24.3	23.1	20.8	19.1	18.3
Black	32.7	32.0	29.4	29.2	28.0
Hispanic	24.1	24.5	21.8	21.2	21.1
White	30.3	27.6	26.6	25.8	22.3

Note: Total includes American Indian, Pacific Islander, and Two or More Races not shown individually due to unreliable rates.
* Calculated using death data for California residents only.

Source: State of California, Department of Health Services, Death Records 2000-2004.

Rates for California Counties

Table 2 (page 12) shows the three-year average numbers of influenza and pneumonia deaths during 2002 to 2004 with crude and age-adjusted death rates for California and its 58 counties. County crude and age-adjusted influenza and pneumonia death rates were calculated using 2003 mid-year population denominators and are presented as rates per 100,000 population.

Los Angeles County had the highest average number of deaths (2,395.0) followed by Orange County (608.0) and San Diego County (547.0). Alpine County was the only county without any deaths attributed to influenza and pneumonia from 2002 to 2004. The highest reliable crude death rate was found in Lake County (40.6) while Monterey County (12.6) had the lowest reliable rate. Reliable age-adjusted rates ranged from a high of 42.0 in Yolo County to a low of 15.0 in San Luis Obispo County. Eleven counties had age-adjusted rates that were significantly different from the State rate; five county rates were higher and six were lower than the State rate of 23.6. **Figure 6** (page 13) shows a thematic map of the 2002-2004 age-adjusted death rates for all California counties.

Please refer to the Data Limitations and Qualifications section for language regarding significance testing between the county and State age-adjusted rates.

Influenza and Pneumonia Deaths for City Health Jurisdictions

Table 3 shows the 2002 to 2004 average numbers of influenza and pneumonia deaths and crude death rates for California's three city health jurisdictions. Long Beach had the highest average number of deaths (94.3), followed by Pasadena (54.0) and Berkeley (13.3). Pasadena had the highest crude death rate at 38.0 per 100,000 population, followed by Long Beach with 19.6. The rate for Berkeley was not reliable.

Age-adjusted death rates were not calculated for the city health jurisdictions because city population data by age are not available.

TABLE 3
INFLUENZA AND PNEUMONIA DEATHS
AMONG THE CITY HEALTH JURISDICTIONS*
CALIFORNIA, 2002-2004

CITY HEALTH JURISDICTION	NUMBER OF DEATHS (Average)	2003 POPULATION	CRUDE DEATH RATE
BERKELEY	13.3	104,192	12.8 +
LONG BEACH	94.3	481,026	19.6
PASADENA	54.0	142,217	38.0

Notes: Rates are per 100,000 population.
*Calculated using death data for California residents only.
+Death rate unreliable (relative standard error is greater than or equal to 23 percent).

Sources: State of California, Department of Health Services, Death Records.
State of California, Department of Finance, E-4 Population Estimates for Cities, Counties and the State, 2001-2005, with 2000 DRU Benchmark, May 2005.

Methodological Approach

The methods used to analyze vital statistics data are important. Analyzing only the number of deaths has its disadvantages and can be misleading because the population at risk is not taken into consideration. Crude death rates show the actual rate of dying in a given population, but because of the differing age compositions of various populations, crude rates do not provide a statistically valid method for comparing geographic areas and/or multiple reporting periods. Age-specific death rates are the number of deaths per 100,000 population in a specific age group and are used along with standard population proportions to develop a weighted average rate. The weighted average rate is referred to as an age-adjusted death rate and removes the effect of different age structures of the populations whose rates are being compared. Age-adjusted death rates therefore provide the preferred method for comparing different race/ethnic groups, sexes, and geographic areas and for measuring death rates over time.

Age-adjusted rates are presented when the single, summary measure is needed, but data analysts should inspect age-specific rates first.[9] Age-specific rates provide insights to important age-related mortality trends that can be masked by age-adjusted rates. For example, a shift in the number of deaths from one age group to another could produce very little change in the age-adjusted rate, but may warrant further investigation. In addition, analysis of age-specific rates can reveal that populations being compared do not show a consistent relationship (e.g., the trend is not in the same direction for all

---

[9]Choi BCK, de Guia NA, and Walsh P. Look before you leap: Stratify before you standardize. American Journal of Epidemiology, 149: 1087-1096. 1999.

age-specific rates) in which case the analysis of age-specific rates is recommended over age-adjusted rates.

Data Limitations and Qualifications

The influenza and pneumonia death data presented in this report are based on the vital statistics records with ICD-10 code J10-J18 as defined by the NCHS.[7] Deaths by place of residence means that the data include only those deaths occurring among residents of California, regardless of the place of death.

The term "significant" within the text indicates statistical significance based on the difference between two independent rates (p< .05). Significant difference between the county and State age-adjusted death rates was determined by comparing the 95 percent confidence intervals (CI) of the two rates, which are based on the rate, standard deviation, and standard error. Rates were considered to be significantly different from each other when their CIs (rounded to the nearest hundredth) did not overlap. If the upper limit of the county CI fell below the lower limit of the State CI, the county rate was deemed to be significantly lower. If the lower limit of the county CI exceeded the higher limit of the State CI, the county rate was deemed to be significantly higher. Significant differences of overlapping CIs were not addressed in this report. Overlapping CIs require a more precise statistical measure to determine significant and non-significant differences in rates because CIs may overlap as much as 29 percent and still be significantly different.[10]

As with any vital statistics data, caution needs to be exercised when analyzing small numbers, including the rates derived from them. Death rates calculated from a small number of deaths and/or population tend to be unreliable and subject to significant variation. To assist the reader, the 95 percent CIs are provided in the data tables as a tool for measuring the reliability of death rates. Rates with a relative standard error (coefficient of variation) greater than or equal to 23 percent are indicated with an asterisk (*). The CIs represent the range of values likely to contain the "true" value 95 percent of the time.

Beginning in 1999 cause of death is reported using ICD-10.[11] Cause of death for 1979 through 1998 was coded using the International Classification of Diseases, Ninth Revision (ICD-9). Depending on the specific cause of death, the numbers of deaths and death rates are not comparable between ICD-9 and ICD-10. Therefore, our analyses do not combine both ICD-9 and ICD-10 data.

To meet the U.S. Office of Management and Budget minimum standards for race and ethnicity data collection and reporting, the report presents the following race/ethnic groups: American Indian, Asian, Black, Hispanic, Pacific Islander, White, and Two or More Races. Hispanic origin of decedents is determined first and includes any race group. Second, decedents of the Two or More Races group are determined and are not reported in single race groups. In order to remain consistent with the population data obtained from the Department of Finance, the single race groups are defined as follows: the "American Indian" race group includes Aleut, American Indian, and Eskimo; the

---

[10]van Belle G. Statistical Rules of Thumb, Rule 2.5. Wiley Publishing. March 2002.
[11]World Health Organization. International Statistical Classification of Diseases and Related Health Problems. Tenth Revision. Geneva: World Health Organization. 1992.

"Asian" race group includes Asian Indian, Asian (specified/unspecified), Cambodian, Chinese, Filipino, Hmong, Japanese, Korean, Laotian, Thai, and Vietnamese; the "Pacific Islander" race group includes Guamanian, Hawaiian, Samoan, and Other Pacific Islander; the "White" race group includes White, Other (specified), Not Stated, and Unknown.

Caution should be exercised in the interpretation of mortality data by race/ethnicity. Misclassification of race/ethnicity on death certificates may contribute to death rates that may be understated among American Indians, Asians, Hispanics, and Pacific Islanders.[12] This problem could contribute to understatements of rates for the Two or More Races group as well. All race groups may not be individually displayed on the tables due to unreliable rates, but the State totals do include their data.

Beginning in 2000 federal race/ethnicity reporting guidelines changed to allow reporting of more than one race on death certificates. California initiated use of the new guidelines on January 1, 2000, and collects up to three races. California's population estimates recently added the multi-race (Two or More Races) group. To be consistent with the population groups, current reports tabulate race of decedent using all races mentioned on the death certificate. Therefore, prior reports depicting race group statistics based on single race are not comparable with current reports.

The 2000 U.S. population standard was used for calculating age-adjustments in accordance with statistical policy implemented by NCHS.[13] Age-adjusted death rates are not comparable when rates are calculated with different population standards, e.g., the 1940 standard population. Additionally, population data used to calculate city crude rates in **Table 3** (page 7) differ from population data used to calculate county crude rates in **Table 2** (page 12). Caution should be exercised when comparing the crude rates of the three city health jurisdictions with the crude rates of the 58 California counties. Age-adjusted rates for city health jurisdictions were not calculated.

A more complete explanation of age-adjustment methodology is available in the "Healthy People 2010 Statistical Notes" publication.[14] Detailed information on data quality and limitations is presented in the appendix of the annual report, "Vital Statistics of California."[15] Formulas used to calculate death rates are included in the technical notes of the "County Health Status Profiles" report.[16]

This Data Summary was prepared by Sally Jew-Lochman, Office of Health Information and Research, Department of Health Services, 1616 Capitol Avenue, Suite 74.165, MS 5101, P.O. Box 997410, Sacramento, CA 95814, telephone (916) 650-6898, fax (916) 650-6889, sjewloch@dhs.ca.gov

---

[12]Rosenberg HM, et al. Quality of Death Rates by Race and Hispanic Origin: A Summary of Current Research, 1999. Vital and Health Statistics, Series 2, No. 128, National Center for Health Statistics, DHHS Pub. No. (PHS) 99-1328, September 1999.

[13]Anderson RN, Rosenberg HM. Age Standardization of Death Rates: Implementation of the Year 2000 Standard. National Vital Statistics Reports; Vol. 47, No. 3. National Center for Health Statistics. Hyattsville, Maryland. 1998.

[14]Klein RJ, Schoenborn CA. Healthy People 2010 Statistical Notes: Age Adjustment using the 2000 Projected U.S. Population. National Center for Health Statistics, DHHS Publication, No 20. January 2001.

[15]Ficenec S, Bindra K. Vital Statistics of California, 2003. Center for Health Statistics, California Department of Health Services, August 2005.

[16]Shippen S. County Health Status Profiles 2006. Center for Health Statistics, California Department of Health Services, April 2006.

TABLE 1
INFLUENZA AND PNEUMONIA DEATHS
BY RACE/ETHNICITY, AGE, AND SEX
CALIFORNIA, 2004
(By Place of Residence)

AGE GROUPS	DEATHS			POPULATION			RATES			95% CONFIDENCE LIMITS					
										TOTAL		MALE		FEMALE	
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER
TOTAL[1]															
Under 1	27	16	11	534,769	272,800	261,969	5.0	5.9 *	4.2 *	3.1	7.0	3.0	8.7	1.7	6.7
1 to 4	16	7	9	2,047,621	1,045,813	1,001,808	0.8 *	0.7 *	0.9 *	0.4	1.2	0.2	1.2	0.3	1.5
5 to 14	8	6	2	5,369,098	2,750,853	2,618,245	0.1 *	0.2 *	0.1 *	0.0	0.3	0.0	0.4	0.0	0.2
15 to 24	16	9	7	5,294,261	2,757,217	2,537,044	0.3 *	0.3 *	0.3 *	0.2	0.5	0.1	0.5	0.1	0.5
25 to 34	25	16	9	5,231,086	2,701,183	2,529,903	0.5	0.6 *	0.4 *	0.3	0.7	0.3	0.9	0.1	0.6
35 to 44	74	39	35	5,672,590	2,883,426	2,789,164	1.3	1.4	1.3	1.0	1.6	0.9	1.8	0.8	1.7
45 to 54	219	134	85	4,931,148	2,440,823	2,490,325	4.4	5.5	3.4	3.9	5.0	4.6	6.4	2.7	4.1
55 to 64	364	204	160	3,303,083	1,594,612	1,708,471	11.0	12.8	9.4	9.9	12.2	11.0	14.5	7.9	10.8
65 to 74	794	433	361	2,025,575	936,610	1,088,965	39.2	46.2	33.2	36.5	41.9	41.9	50.6	29.7	36.6
75 to 84	2,265	1,091	1,174	1,420,413	590,956	829,457	159.5	184.6	141.5	152.9	166.0	173.7	195.6	133.4	149.6
85 & Older	3,523	1,402	2,121	546,767	187,361	359,406	644.3	748.3	590.1	623.1	665.6	709.1	787.5	565.0	615.3
Unknown	0	0	0												
Total	7,331	3,357	3,974	36,376,411	18,161,654	18,214,757	20.2	18.5	21.8	19.7	20.6	17.9	19.1	21.1	22.5
Age-Adjusted							21.7	25.3	19.4	21.2	22.2	24.4	26.1	18.8	20.0
ASIAN															
Under 1	3	2	1	48,115	24,552	23,563	6.2 *	8.1 *	4.2 *	0.0	13.3	0.0	19.4	0.0	12.6
1 to 4	2	2	0	188,290	96,379	91,911	1.1 *	2.1 *	0.0 +	0.0	2.5	0.0	5.0	-	-
5 to 14	1	1	0	498,432	257,125	241,307	0.2 *	0.4 *	0.0 +	0.0	0.6	0.0	1.2	-	-
15 to 24	2	0	2	567,146	291,640	275,506	0.4 *	0.0 +	0.7 *	0.0	0.8	-	-	0.0	1.7
25 to 34	0	0	0	618,710	302,916	315,794	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
35 to 44	7	4	3	671,272	321,320	349,952	1.0 *	1.2 *	0.9 *	0.3	1.8	0.0	2.5	0.0	1.8
45 to 54	12	5	7	609,567	284,594	324,973	2.0 *	1.8 *	2.2 *	0.9	3.1	0.2	3.3	0.6	3.7
55 to 64	24	13	11	385,197	179,303	205,894	6.2	7.3 *	5.3 *	3.7	8.7	3.3	11.2	2.2	8.5
65 to 74	75	41	34	245,629	107,974	137,655	30.5	38.0	24.7	23.6	37.4	26.3	49.6	16.4	33.0
75 to 84	206	104	102	154,086	64,809	89,277	133.7	160.5	114.3	115.4	151.9	129.6	191.3	92.1	136.4
85 & Older	295	129	166	50,569	20,013	30,556	583.4	644.6	543.3	516.8	649.9	533.3	755.8	460.6	625.9
Unknown	0	0	0												
Total	627	301	326	4,037,013	1,950,625	2,086,388	15.5	15.4	15.6	14.3	16.7	13.7	17.2	13.9	17.3
Age-Adjusted							18.3	21.1	16.2	16.8	19.7	18.7	23.5	14.5	18.0
BLACK															
Under 1	4	2	2	32,707	16,671	16,036	12.2 *	12.0 *	12.5 *	0.2	24.2	0.0	28.6	0.0	29.8
1 to 4	2	0	2	122,652	62,561	60,091	1.6 *	0.0 +	3.3 *	0.0	3.9	-	-	0.0	7.9
5 to 14	1	1	0	408,879	208,120	200,759	0.2 *	0.5 *	0.0 +	0.0	0.7	0.0	1.4	-	-
15 to 24	3	1	2	395,238	205,416	189,822	0.8 *	0.5 *	1.1 *	0.0	1.6	0.0	1.4	0.0	2.5
25 to 34	4	4	0	326,490	160,606	165,884	1.2 *	2.5 *	0.0 +	0.0	2.4	0.0	4.9	-	-
35 to 44	6	5	1	399,615	199,186	200,429	1.5 *	2.5 *	0.5 *	0.3	2.7	0.3	4.7	0.0	1.5
45 to 54	35	21	14	329,298	160,793	168,505	10.6	13.1	8.3 *	7.1	14.1	7.5	18.6	4.0	12.7
55 to 64	42	21	21	199,142	92,418	106,724	21.1	22.7	19.7	14.7	27.5	13.0	32.4	11.3	28.1
65 to 74	74	42	32	121,222	55,208	66,014	61.0	76.1	48.5	47.1	75.0	53.1	99.1	31.7	65.3
75 to 84	141	65	76	64,749	25,309	39,440	217.8	256.8	192.7	181.8	253.7	194.4	319.3	149.4	236.0
85 & Older	163	54	109	25,074	7,615	17,459	650.1	709.1	624.3	550.3	749.9	520.0	898.3	507.1	741.5
Unknown	0														
Total	475	216	259	2,425,066	1,193,903	1,231,163	19.6	18.1	21.0	17.8	21.3	15.7	20.5	18.5	23.6
Age-Adjusted							28.0	32.3	24.9	25.4	30.5	27.8	36.8	21.9	28.0
HISPANIC															
Under 1	14	10	4	273,401	139,443	133,958	5.1 *	7.2 *	3.0 *	2.4	7.8	2.7	11.6	0.1	5.9
1 to 4	9	3	6	1,003,339	512,381	490,958	0.9 *	0.6 *	1.2 *	0.3	1.5	0.0	1.2	0.2	2.2
5 to 14	5	3	2	2,503,684	1,279,931	1,223,753	0.2 *	0.2 *	0.2 *	0.0	0.4	0.0	0.5	0.0	0.4
15 to 24	5	4	1	2,275,634	1,199,542	1,076,092	0.2 *	0.3 *	0.1 *	0.0	0.4	0.0	0.7	0.0	0.3
25 to 34	15	8	7	2,332,753	1,244,497	1,088,256	0.6 *	0.6 *	0.6 *	0.3	1.0	0.2	1.1	0.2	1.1
35 to 44	14	8	6	1,954,969	1,014,652	940,317	0.7 *	0.8 *	0.6 *	0.3	1.1	0.2	1.3	0.1	1.1
45 to 54	37	24	13	1,228,904	607,654	621,250	3.0	3.9	2.1 *	2.0	4.0	2.4	5.5	1.0	3.2
55 to 64	51	31	20	636,784	298,857	337,927	8.0	10.4	5.9	5.8	10.2	6.7	14.0	3.3	8.5
65 to 74	145	67	78	357,389	157,978	199,411	40.6	42.4	39.1	34.0	47.2	32.3	52.6	30.4	47.8
75 to 84	299	145	154	190,758	78,695	112,063	156.7	184.3	137.4	139.0	174.5	154.3	214.2	115.7	159.1
85 & Older	374	139	235	58,423	20,677	37,746	640.2	672.2	622.6	575.3	705.0	560.5	784.0	543.0	702.2
Unknown	0	0	0												
Total	968	442	526	12,816,038	6,554,307	6,261,731	7.6	6.7	8.4	7.1	8.0	6.1	7.4	7.7	9.1
Age-Adjusted							21.1	23.4	19.5	19.7	22.5	21.0	25.7	17.8	21.2
WHITE															
Under 1	5	2	3	164,750	84,066	80,684	3.0 *	2.4 *	3.7 *	0.4	5.7	0.0	5.7	0.0	7.9
1 to 4	3	2	1	617,372	315,162	302,210	0.5 *	0.6 *	0.3 *	0.0	1.0	0.0	1.5	0.0	1.0
5 to 14	1	1	0	1,722,936	886,271	836,665	0.1 *	0.1 *	0.0 +	0.0	0.2	0.0	0.3	-	-
15 to 24	6	4	2	1,856,335	960,424	895,911	0.3 *	0.4 *	0.2 *	0.1	0.6	0.0	0.8	0.0	0.5
25 to 34	6	4	2	1,808,165	922,586	885,579	0.3 *	0.4 *	0.2 *	0.1	0.6	0.0	0.9	0.0	0.5
35 to 44	45	20	25	2,502,123	1,278,269	1,223,854	1.8	1.6	2.0	1.3	2.3	0.9	2.3	1.2	2.8
45 to 54	131	81	50	2,639,194	1,328,451	1,310,743	5.0	6.1	3.8	4.1	5.8	4.8	7.4	2.8	4.9
55 to 64	240	134	106	2,005,398	987,820	1,017,578	12.0	13.6	10.4	10.5	13.5	11.3	15.9	8.4	12.4
65 to 74	493	279	214	1,260,712	596,472	664,240	39.1	46.8	32.2	35.7	42.6	41.3	52.3	27.9	36.5
75 to 84	1,602	769	833	988,209	412,295	575,914	162.1	186.5	144.6	154.2	170.0	173.3	199.7	134.8	154.5
85 & Older	2,677	1074	1603	402,581	135,267	267,314	665.0	794.0	599.7	639.8	690.1	746.5	841.5	570.3	629.0
Unknown	0	0	0												
Total	5,209	2,370	2,839	15,967,775	7,907,083	8,060,692	32.6	30.0	35.2	31.7	33.5	28.8	31.2	33.9	36.5
Age-Adjusted							22.3	26.2	19.8	21.7	22.9	25.2	27.3	19.1	20.5

Note : Rates are per 100,000 population. ICD-10 codes J10-J18.
    Year 2000 U.S. Standard Population is used for age-adjusted rates.
    American Indian, Asian, Black, Pacific Islander, White and Two or More Races exclude Hispanic ethnicity.
    Hispanic includes any race category.

*   Death rate unreliable, relative standard error is greater than or equal to 23 percent.
\+   Standard error indeterminate, death rate based on no (zero) deaths.
\-   Confidence limit is not calculated for no (zero) deaths.
[1]   Includes American Indian (16), Pacific Islanders (11) not individually shown due to unreliable rates.

TABLE 1 (Continued)
INFLUENZA AND PNEUMONIA DEATHS
BY RACE/ETHNICITY, AGE, AND SEX
CALIFORNIA, 2004
(By Place of Residence)

AGE GROUPS	DEATHS			POPULATION			RATES			95% CONFIDENCE LIMITS					
										TOTAL		MALE		FEMALE	
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER
TOTAL[1]															
Under 1	27	16	11	534,769	272,800	261,969	5.0	5.9 *	4.2 *	3.1	7.0	3.0	8.7	1.7	6.7
1 to 4	16	7	9	2,047,621	1,045,813	1,001,808	0.8 *	0.7 *	0.9 *	0.4	1.2	0.2	1.2	0.3	1.5
5 to 14	8	6	2	5,369,098	2,750,853	2,618,245	0.1 *	0.2 *	0.1 *	0.0	0.3	0.0	0.4	0.0	0.2
15 to 24	16	9	7	5,294,261	2,757,217	2,537,044	0.3 *	0.3 *	0.3 *	0.2	0.5	0.1	0.5	0.1	0.5
25 to 34	25	16	9	5,231,086	2,701,183	2,529,903	0.5	0.6 *	0.4 *	0.3	0.7	0.3	0.9	0.1	0.6
35 to 44	74	39	35	5,672,590	2,883,426	2,789,164	1.3	1.4	1.3	1.0	1.6	0.9	1.8	0.8	1.7
45 to 54	219	134	85	4,931,148	2,440,823	2,490,325	4.4	5.5	3.4	3.9	5.0	4.6	6.4	2.7	4.1
55 to 64	364	204	160	3,303,083	1,594,612	1,708,471	11.0	12.8	9.4	9.9	12.2	11.0	14.5	7.9	10.8
65 to 74	794	433	361	2,025,575	936,610	1,088,965	39.2	46.2	33.2	36.5	41.9	41.9	50.6	29.7	36.6
75 to 84	2,265	1,091	1,174	1,420,413	590,956	829,457	159.5	184.6	141.5	152.9	166.0	173.7	195.6	133.4	149.6
85 & Older	3,523	1,402	2,121	546,767	187,361	359,406	644.3	748.3	590.1	623.1	665.6	709.1	787.5	565.0	615.3
Unknown	0	0	0												
Total	7,331	3,357	3,974	36,376,411	18,161,654	18,214,757	20.2	18.5	21.8	19.7	20.6	17.9	19.1	21.1	22.5
Age-Adjusted							21.7	25.3	19.4	21.2	22.2	24.4	26.1	18.8	20.0
TWO OR MORE RACES															
Under 1	1	0	1	10,725	5,479	5,246	9.3 *	0.0 +	19.1 *	0.0	27.6	-	-	0.0	56.4
1 to 4	0	0	0	99,863	51,049	48,814	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
5 to 14	0	0	0	171,009	86,842	84,167	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
15 to 24	0	0	0	132,609	65,842	66,767	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
25 to 34	0	0	0	87,030	41,857	45,173	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
35 to 44	1	1	0	78,882	37,944	40,938	1.3 *	2.6 *	0.0 +	0.0	3.8	0.0	7.8	-	-
45 to 54	2	1	1	65,728	31,245	34,483	3.0 *	3.2 *	2.9 *	0.0	7.3	0.0	9.5	0.0	8.6
55 to 64	3	2	1	40,271	18,874	21,397	7.4 *	10.6 *	4.7 *	0.0	15.9	0.0	25.3	0.0	13.8
65 to 74	2	2	0	22,432	10,465	11,967	8.9 *	19.1 *	0.0 +	0.0	21.3	0.0	45.6	-	-
75 to 84	7	4	3	13,515	5,955	7,560	51.8 *	67.2 *	39.7 *	13.4	90.2	1.3	133.0	0.0	84.6
85 & Older	9	4	5	5,380	1,984	3,396	167.3 *	201.6 *	147.2 *	58.0	276.6	4.0	399.2	18.2	276.3
Unknown	0	0	0												
Total	25	14	11	727,444	357,536	369,908	3.4	3.9 *	3.0 *	2.1	4.8	1.9	6.0	1.2	4.7
Age-Adjusted							6.9	9.2 *	5.1 *	4.1	9.7	4.3	14.1	2.0	8.2

Note : Rates are per 100,000 population. ICD-10 codes J10-J18.
    Year 2000 U.S. Standard Population is used for age-adjusted rates.
    American Indian, Asian, Black, Pacific Islander, White and Two or More Races exclude Hispanic ethnicity.
    Hispanic includes any race category.

* Death rate unreliable, relative standard error is greater than or equal to 23 percent.
+ Standard error indeterminate, death rate based on no (zero) deaths.
- Confidence limit is not calculated for no (zero) deaths.
[1] Includes American Indian (16), Pacific Islanders (11) not individually shown due to unreliable rates.

Source : State of California, Department of Finance; Population Projections with Age, Sex, and Race/Ethnic Detail, 2000-2050, May 2004.
    State of California, Department of Health Services, Death Records.

TABLE 2
INFLUENZA AND PNEUMONIA DEATHS
CALIFORNIA, 2002-2004
(By Place of Residence)

COUNTY	2004-2004 DEATHS (AVERAGE)	PERCENT	2003 POPULATION	CRUDE RATE	AGE-ADJUSTED RATE	95% CONFIDENCE LIMITS	
						LOWER	UPPER
CALIFORNIA	7,871.0	100.0	35,934,967	21.9	23.6	23.1	24.1
ALAMEDA	286.3	3.6	1,495,367	19.1	22.2	19.6	24.8
ALPINE	0.0	0.0	1,268	0.0 +	0.0 +	-	-
AMADOR	11.0	0.1	37,074	29.7 *	22.8 *	9.2	36.3
BUTTE	63.3	0.8	212,473	29.8	22.6	16.9	28.2
CALAVERAS	15.0	0.2	43,566	34.4 *	28.1 *	13.7	42.6
COLUSA	6.0	0.1	20,026	30.0 *	33.3 *	6.6	60.0
CONTRA COSTA	232.3	3.0	1,003,704	23.1	23.8	20.7	26.8
DEL NORTE	9.0	0.1	28,192	31.9 *	30.1 *	10.4	49.8
EL DORADO	30.7	0.4	168,227	18.2	19.1	12.2	25.9
FRESNO	188.0	2.4	855,469	22.0	27.0	23.2	30.9
GLENN	7.7	0.1	27,626	27.8 *	26.3 *	7.6	45.1
HUMBOLDT	33.3	0.4	129,515	25.7	25.4	16.7	34.0
IMPERIAL	18.3	0.2	153,673	11.9 *	16.5 *	8.8	24.2
INYO	5.0	0.1	18,617	26.9 *	19.5 *	0.7	38.3
KERN	173.0	2.2	717,332	24.1	25.9	22.0	29.8
KINGS	10.3	0.1	138,763	7.4 *	11.6 *	4.4	18.9
LAKE	25.3	0.3	62,359	40.6	29.7	17.9	41.5
LASSEN	6.0	0.1	34,633	17.3 *	20.3 *	4.0	36.5
LOS ANGELES	2,395.0	30.4	10,047,236	23.8	25.1	24.1	26.1
MADERA	22.7	0.3	133,965	16.9	16.3	9.6	23.1
MARIN	63.7	0.8	250,252	25.4	20.6	15.5	25.7
MARIPOSA	2.7	a	17,886	14.9 *	11.3 *	0.0	24.8
MENDOCINO	20.7	0.3	89,156	23.2	21.4	12.2	30.7
MERCED	33.7	0.4	230,696	14.6	21.4	14.1	28.6
MODOC	1.7	a	9,541	17.5 *	11.8 *	0.0	29.8
MONO	1.3	a	13,443	9.9 *	17.4 *	0.0	49.6
MONTEREY[1]	52.7	0.7	418,842	12.6	15.3	11.2	19.5
NAPA	50.3	0.6	130,920	38.4	26.1	18.7	33.4
NEVADA	26.3	0.3	96,923	27.2	20.3	12.5	28.1
ORANGE	608.0	7.7	3,001,146	20.3	25.2	23.2	27.2
PLACER	61.7	0.8	285,336	21.6	19.2	14.4	23.9
PLUMAS	8.7	0.1	21,181	40.9 *	26.6 *	8.9	44.3
RIVERSIDE[1]	346.0	4.4	1,758,719	19.7	19.7	17.6	21.7
SACRAMENTO	329.0	4.2	1,331,563	24.7	26.9	24.0	29.8
SAN BENITO	9.3	0.1	56,605	16.5 *	25.6 *	9.1	42.1
SAN BERNARDINO[1]	333.0	4.2	1,869,219	17.8	27.2	24.3	30.2
SAN DIEGO[1]	547.0	6.9	2,989,178	18.3	20.4	18.7	22.1
SAN FRANCISCO[1]	269.7	3.4	786,980	34.3	28.9	25.4	32.3
SAN JOAQUIN	110.7	1.4	625,702	17.7	22.9	18.6	27.2
SAN LUIS OBISPO[1]	46.3	0.6	257,452	18.0	15.0	10.7	19.4
SAN MATEO[1]	216.7	2.8	712,772	30.4	28.1	24.3	31.8
SANTA BARBARA	93.3	1.2	412,069	22.6	20.8	16.6	25.0
SANTA CLARA	316.0	4.0	1,723,819	18.3	22.8	20.3	25.4
SANTA CRUZ	46.3	0.6	259,220	17.9	18.7	13.3	24.1
SHASTA[1]	44.3	0.6	175,421	25.3	16.4	11.4	21.3
SIERRA	1.0	a	3,563	28.1 *	16.9 *	0.0	50.4
SISKIYOU	17.3	0.2	45,081	38.4 *	26.5 *	13.9	39.1
SOLANO	83.0	1.1	416,406	19.9	20.5	16.0	25.0
SONOMA[1]	109.7	1.4	473,274	23.2	19.1	15.5	22.8
STANISLAUS[1]	130.0	1.7	489,491	26.6	29.9	24.7	35.1
SUTTER	25.3	0.3	84,978	29.8	31.3	19.1	43.4
TEHAMA	17.7	0.2	58,665	30.1 *	18.5 *	9.6	27.3
TRINITY	3.7	a	13,579	27.0 *	18.6 *	0.0	37.7
TULARE	70.3	0.9	392,989	17.9	24.6	18.8	30.4
TUOLUMNE	15.7	0.2	57,120	27.4 *	20.1 *	10.1	30.2
VENTURA	150.0	1.9	799,114	18.8	20.6	17.3	23.9
YOLO[1]	57.7	0.7	183,602	31.4	42.0	31.1	52.8
YUBA	12.3	0.2	63,979	19.3 *	22.9 *	10.0	35.7

Note : Rates are per 100,000 population. ICD-10 codes J10-J18.
   Year 2000 U.S. Standard Population is used for age-adjusted rates.
   a Represents a percentage of more than zero but less than 0.05.
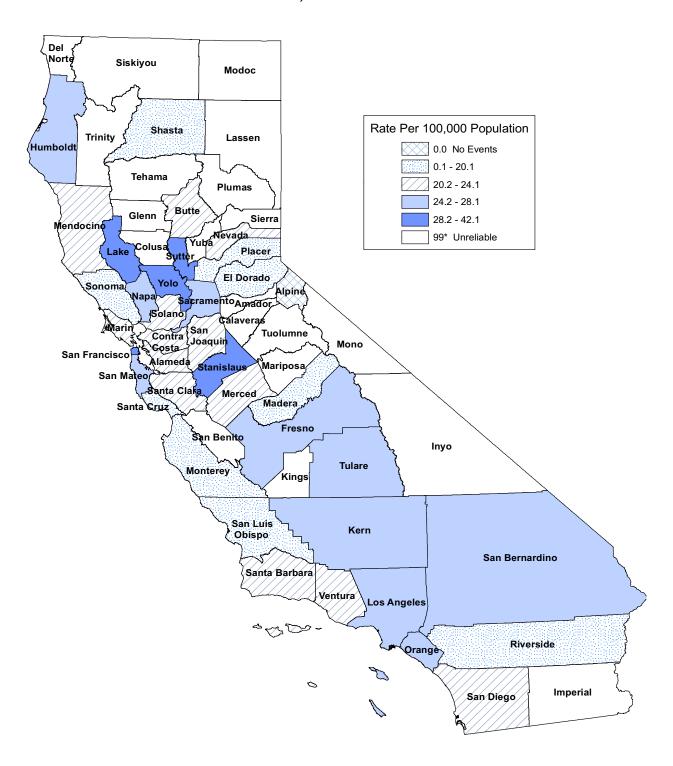   * Death rate unreliable, relative standard error is greater than or equal to 23 percent.

[1] County age-adjusted rate is significantly different from the state age-adjusted rate.
- Confidence limit is not calculated for no (zero) events.
+ Standard error indeterminate, death rate based on no (zero) deaths.

Source: State of California, Department of Finance; 2003 Population: Population Projections by Age, Race/Ethnicity and Sex, May 2004.
   State of California, Department of Health Services, Death Records.

Figure 6
Influenza and Pneumonia Age-Adjusted Death Rates
California, 2002-2004

Rate Per 100,000 Population

- 0.0 No Events
- 0.1 - 20.1
- 20.2 - 24.1
- 24.2 - 28.1
- 28.2 - 42.1
- 99* Unreliable

* Rate not reliable, standard error is greater than or equal to 23 percent.

Source: State of California, Department of Health Services, Death Records.